Biological Assessment for Bull Trout and its Habitat in the Upper John Day River Basin

Submitted to: U. S. Fish and Wildlife Service Bend, Oregon

May, 1999

Submitted by: Bureau of Land Management, Prineville District Central Oregon Resource Area

For: South Little Canyon Timber Sale

Project Description (*South Little Canyon Timber Sale*)

The BLM proposes to commercially thin about 993 thousand board feet of timber on 284 acres, and pre-commercially thin about 150 acres within the harvest units, in the South Little Canyon Timber Sale. Trees larger than 11" diameter at breast height in harvest units, would be thinned to 24-30 feet leave tree spacing, and pre-commercial sized trees would be thinned to 12' X 12' spacing.

To implement the proposed action, the main haul route road would be improved with blading and crushed rock over 3 road miles. New construction of temporary road would total 500 feet, existing road extensions (new construction) would total 400 feet, and 1000 feet of existing roads would be improved for logging use (See Map A).

The timber harvest area lies entirely within the Little Pine Creek drainage, a second order stream. Bull trout are not known to inhabit Little Pine Creek. Only Westslope cutthroat trout were found in this creek during a 1996 fish distribution survey on BLM lands. Steelhead trout are suspected, but not confirmed, to inhabit this reach of Little Pine Creek. The headwaters of Little Pine Creek flow out of the Strawberry Mountain Wilderness Area, which abuts the BLM managed lands in this drainage.

The objectives of this harvest plan are:

- Commercial thin the understory and overstory ponderosa pine, Douglas fir and white fir trees to improve tree vigor and resistance to future insect damage

- Pre-commercial thin the sale area to establish healthy spacing and stocking levels in the understory

- Remove the insect and disease infected trees of all species

- Enhance forest species diversity in the stand and at the landscape level

- Restrict bark beetle movement throughout the stand

All “Best Management Practices” as listed in the John Day RMP, Record of Decision (Appendix A), will be utilized. Some additional resource protection measures are listed:

- Implement all applicable Riparian Conservation Area no cut buffer areas, as covered in PACFISH, along stream channels

- Full suspension of logs above ground required through RCA buffers

- Tractor yarding on slopes less than 35% slope, and cable yarding and slopes greater than 35%, and more than 10 acres in size

- Improve condition of the Canyon Mountain Trail Road (main haul route) to an all weather road, improving drainage and decreasing surface erosion

- Close all side roads in the sale area that are not deemed necessary for future resource management

- Rip, waterbar and seed all temporary roads, landings, and major skid trails

- Woody debris falling into stream channels from cable whipping will be left in place to minimize disturbance within RCA's

Environmental Baseline of the Little Pine Creek Drainage

Description of Ratings of Baseline Indicators for Little Pine Creek. *This specific rating is for developing an effects analysis of the South Little Canyon Mountain timber sale.*

Subpopulation Characteristics within subpopulation watersheds: Mean total population size in the Upper John Day Subbasin is unknown. Resiliency of the Upper John Day River (UJDR) subpopulation to short term disturbances is unknown. Migratory corridor habitat in the JDR, downstream of the project area, is entirely on private lands.

Water Temperature: No water temperature data is available for Little Pine Creek and its tributaries. Water temperatures in the JDR are likely **Properly Functioning** during winter migration periods.

Sediment: There are no bull trout spawning or incubation areas within the project area, or downstream. **Not Applicable**

Chemical Contamination/Nutrients: Nearly all reaches are above agriculture areas. No CWA 303d listed reaches. Professional judgement would rate these streams as **Properly Functioning**

Physical Barriers: Bull trout are not known to inhabit the Little Pine Creek. Westslope cutthroat trout have been found in this reach. There are no known barriers to prevent bull trout from colonizing this stream. **Properly Functioning**

Substrate Embeddedness: Informal surveys rated embeddedness at 20-30 percent in Little Pine Creek. There are no bull trout rearing areas within the project area, or downstream. **Not Applicable**

Large Wood: There is no quantified large wood data for these streams. Based on direct observations, Little Pine Creek is rated **Properly Functioning**. This is due to ample amounts of LWD observed in the stream, a good overstory of trees, and little evidence that overstory trees next to the stream have been removed. Although LWD pieces are not always 35 feet in length, they function well in this small stream.

Pool Frequency/Quality: Survey data is not available to quantify pool frequencies or pool quality. Some relatively deep pools occur (the stream is about 2-4 feet in width on average), and generally have good cover and cool water. Pools probably have moderate volume reductions from fine sediments. **Unknown**

Off-Channel Habitat: Due to the small size and moderate to steep gradient of Little Pine Creek, little to no off channel habitat is expected to occur. **Not Applicable**

Refugia: Little Pine Creek flows out of National Forest Wilderness Area onto BLM lands. It has good water temperatures, and well vegetated streambanks. Professional judgement would rate the stream individually, as too small to maintain viable sub-populations. **At Risk**

Wetted Width/Max Depth Ratio: There is no current width to depth ratio data available for these streams. Professional judgment from direct observations would rate this stream as **Properly Functioning.**

Streambank Condition: Based direct observations, this indicator is **Properly Functioning.**

Floodplain Connectivity: Condition rated **At Risk**, from direct observation and professional judgment. The stream has downcut 1-2 feet in some areas. This is a small stream with a steep gradient, so floodplain linkage is minor.

Changes in Peak Flow/Base Flow: Flow data does not exist for these streams. Professional judgement estimates condition as **At Risk,** from direct observations of the stream channel.

Drainage Network Increase: Increases of the drainage network are generally limited to road interaction with streams. Rills or gullies associated with roads and ATV trails are evident. Common off road use occurs in the Little Pine Creek drainage. Direct erosion and sediment delivery to the stream is occurring at two stream crossings/fords. Because of this, condition is rated **Not Properly Functioning**

Road Density and Location: Estimated average road densities for all BLM lands are <2.4 mi/mi^2, with some valley bottom roads. **Functioning at Risk**

Disturbance History: Most BLM forested tracts have not had significant timber harvest, so past disturbance (% ECA) is less than 15%. **Properly Functioning**

Riparian Reserves: Based on visual assessments of Little Pine Creek, its riparian area provides adequate shade, large wood recruitment, and habitat connectivity to support salmonid populations and provide good water quality to downstream migratory bull trout habitat in the JDR. **Properly Functioning**

Disturbance Regime: Because the project area has moderate to high precipitation levels, it has a moderate to high resiliency of habitat to recover from environmental disturbances. **At Risk**

Integration of Species and Habitat Conditions: Bull trout are not known to inhabit the Little Pine Creek drainage. **Not Applicable**

Rational for Checklist Ratings of Effects for Population and Environmental Indicators (See Table 1) for <u>The South Little Canyon Timber Sale</u>

Water Temperature: Water temperatures would not be affected by this action. All fish bearing streams have been excluded from the harvest area with 300 feet (or more) no cut buffer on each side of the streambank. One non fish-bearing stream lies within a harvest unit. It will be buffered from activity with a 150 feet no cut corridor on each side of it. One intermittent stream lies within a harvest unit, and will be buffered with a 50 feet no cut corridor on each side.

Sediment: Minor impacts to sediment levels in perennial streams is expected. Increased truck traffic on the road near Little Pine Creek may increase sediment movement off that road. Most mobilized sediment will be captured by the well vegetated areas between the road and Little Pine Creek, however. Stream buffers described under Water Temperature will minimize the amount of sediment potentially mobilized and delivered to stream channels, as a result of the actual timber cutting activities. Proposed road construction is minor (400-500 feet) and is situated outside of Riparian Conservation Areas (RCA's). Further, no bull trout spawning or incubation stream segments exist downstream of the project area, so this habitat indicator would not be affected.

Chemical Contamination/Nutrients: This timber harvest proposal has a low likelihood of causing any chemical contamination to perennial streams.

Physical Barriers: This timber harvest activity will not cause migration barriers that would prevent any future colonization of the stream by bull trout.

Substrate Embeddedness: Potentially a small amount of fine sediment could enter Little Pine Creek due to increased truck traffic on the haul route. This is expected to minimal because the main haul route road is only close (within 300 feet) to Little Pine Creek for about 0.3 miles. Dense riparian vegetation will also minimize any sediment delivery to the stream which could increase substrate embeddedness. Further, no bull trout rearing areas exist downstream of the project area, so this habitat indicator would not be affected.

Large Wood: This timber harvest will not remove any timber within PACFISH RCA's. There will be no effect to future or current levels of instream large wood.

Pool Frequency/Quality: No adverse effects to pool frequencies are expected because no activities are proposed within RCA's. Bull trout do not inhabit Little Pine Creek.

Off-Channel Habitat: No adverse effects to off-channel habitats are expected because no activities are proposed within RCA's. Also, due to the small size and moderate to steep gradient of Little Pine Creek, little to no off channel habitat is expected to occur. **Not Applicable**

Refugia: No adverse effects to riparian reserves are expected because no activities are proposed within RCA's

Wetted Width/Max Depth Ratio: No adverse effects to width to depth ratios are expected because no activities are proposed within RCA's

Streambank Condition: No adverse effects to streambank conditions are expected because no activities are proposed within RCA's.

Floodplain Connectivity:. No adverse effects to floodplain connectivity are expected because no activities are proposed within RCA's. Wetland areas and riparian vegetation will be maintained.

Changes in Peak/Base Flow:. Harvested areas are expected to contain wetter soils after harvest during periods of evapotranspiration. This can lead to higher groundwater levels, and potentially, higher late-summer streamflows. This desirable effect lasts 3-5 years (in clearcut areas) until new root systems occupy the soil (Chanberlain, et al., 1991). Because this harvest activity includes only commercial thinning (24-30 feet leave tree spacing), and pre-commercial thinning (12 X 12 feet spacing) actions, changes in peak/base flows are expected to be minor.

Drainage Network Increase: Minor changes are expected to the drainage network, and will be temporary. New road construction for timber harvest includes about 900 feet, of which 500 feet will be temporary road. No significant increase in drainage network is expected in this matrix analysis area.

Road Density and Location: Road densities will increase slightly within this matrix analysis area, but will remain <2.4 miles per square mile range. An increase by 900 feet of new roads, of which 500 feet is temporary road, is very unlikely affect drainage patterns adversely. There are no proposed valley bottom roads. Temporary roads will be ripped, water barred, and seeded after harvest activities are finished.

Disturbance History: Disturbance history (% ECA) will not be effected by this action, because no clearcutting is prescribed in the harvest units.

Riparian Reserves: This timber harvest activity will have no effect on riparian vegetation communities, for reasons described under Water Temperature.

Disturbance Regime: Environmental disturbance related to this project are expected to be temporary and short lived. The project area is outside of occupied summer habitat for bull trout and will not affect the rearing life stages of bull trout subpopulations.

Integration of Species and Habitat Conditions: Bull trout are not known to inhabit the Little Pine Creek drainage. Habitat quality and connectivity among subpopulations will not be affected.

Table 1. Showing the checklist for documenting environmental base line and effects of the **South Little Canyon Timber Sale**

PATHWAYS: **INDICATORS**	**ENVIRONMENTAL BASELINE**			**EFFECTS OF THE ACTION(S)**		
	Properly Functioning	**At Risk**	**Not Properly Functioning**	**Restore**	**Maintain**	**Degrade**
Water Quality: Temperature	X				X	
Sediment	N/A				N/A	
Chem. Contam./Nut.	X				X	
Habitat Access: Physical Barriers	X				X	
Habitat Elements: Substrate Embeddedness	N/A				N/A	
Large Woody Debris	X				X	
Pool Frequency/Quality		X			X	
Off-Channel Habitat	N/A				N/A	
Refugia		X			X	
Channel Cond. & Dyn: Width/Depth Ratio	X				X	
Streambank Cond.	X				X	
Floodplain Connectivity		X			X	
Flow/Hydrology: Peak/Base Flows		X			X	
Drainage Network Increase			X		X	
Watershed Conditions: Road Dens. & Loc.		X			X	
Disturbance History	X				X	
Riparian Reserves	X				X	
Disturbance Regime		X			X	
Integration of Species and Habitat Conditions	N/A			N/A		

Answers to the Dichotomous Key For Making ESA Determination of Effects for the South Little Canyon Timber Sale;

1. Are there any proposed/listed anadromous salmonids and/or proposed/designated critical habitat in the watershed or downstream from the watershed?

Yes, bull trout winter migratory habitat in the John Day River

2. Does the proposed action(s) have the potential to hinder attainment of relevant properly functioning indicators?

No, prescribed stream channel buffers, and implementation of "Best Management Practices" will maintain all indicators

3. Does the proposed action(s) have the potential to result in "take" of proposed/listed anadromous salmonids or destruction/adverse modification of proposed/designated critical habitat?

There is a negligible (extremely low) probability of take of proposed/listed anadromous salmonids or destruction/adverse modification of habitat. Implementing stream buffers under PACFISH guidelines should adequately protect water quality, channel stability, riparian vegetation communities and watershed conditions. **Not likely to adversely affect**

Literature Cited

Chamberlain, T.W., R.D. Harr, and F.H. Everest. 1991. Timber Harvesting, Silviculture, and Watershed Processes. *In* influences of Forest and Rangeland Management on Salmonid Fishes and Their Habitats. American Fisheries Society Special Publication, pp 181-205.